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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Greg HETHERINGTON
Serial no. : 09/898,943
Filed : July 3, 2001
For : METHOD AND APPARATUS FOR
PROCESSING FREE-FORMAT DATA
3624
Group Art Unit :
Examiner : Ella Colbert
Docket : GRIHAC P22AUSD1

The Commissioner for Patents
U.S. Patent & Trademark Office
P. O. Box 1450
Alexandria, VA 22313-1450

**SECOND SUPPLEMENTAL RESPONSE
IN CORRECTION OF PRECEDING SUPPLEMENTAL RESPONSE**

Dear Sir:

The present Supplemental Response is submitted in response to the Office Action mailed October 1, 2004 and in correction of the preceding Supplemental Response filed July 15, 2004 in reply to the Office Action of June 1, 2004.

In correction of the Supplemental Response of July 15, 2004, please enter the following amendments to the claims as the sole elected amendments to the claims of the present Application as pending at the time of filing of the Supplemental Response of July 15, 2004.

In the Claims:

Please amend claims 54, 73, 93 and 94 as follows in which the claim additions are shown by underlining and/or the claim deletions are shown by strikeout. Please enter the amended claims into the record of this case.

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1-53. (CANCELED)

54. (CURRENTLY AMENDED) A method of processing free-format data stored in a computing system, comprising the steps of examining elements of the data to determine attributes of the data, by examining the content of the elements and the contextual relationships of elements to each other, to determine semantic and syntactic information (attributes) about the data, producing additional data relating to this information, in the form of a text object comprising a text node tree which includes pointer means enabling access to the elements of the text object and the free-format data, and the additional data being accessible by a query processing means to at least one of provide answers to queries relating to the semantic and syntactic information about the data and access the data to manipulate the data.

55. (PREVIOUSLY PRESENTED) The method according to claim 54, wherein the free-format data is stored as a record in a free-format field of a database.

56. (PREVIOUSLY PRESENTED) The method according to claim 54, wherein the data remains stored in the computing system as it was originally stored, whereby it may be accessed by other applications.

57. (PREVIOUSLY AMENDED) The method according to claim 54, wherein the text object includes an attribute - type identifier which identifies an attribute - type of an element of the data.

58. (PREVIOUSLY PRESENTED) The method according to claim 54, wherein the text object includes a value indicating the character length of an element of the data.

59. (PREVIOUSLY PRESENTED) The method according to claim 57, wherein the text object includes a value indicating whether an element is a low level in a syntactic hierarchy or higher level whereby the value may be used for matching purposes when matching data with other data processed in accordance with the method.

60. (PREVIOUSLY PRESENTED) The method according to claim 54, wherein the text object including a match weighting value for an element of the data, which can be used to determine the significance of the element when matching with other free format data.

61. (PREVIOUSLY PRESENTED) The method according to claim 54, wherein the text object comprises a plurality of component nodes arranged according to the

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semantic structure of the free-format data, the component nodes being arranged in a hierarchy corresponding to the semantic structure of the free-format data and each component node including additional data relating to the corresponding element of the free-format data.

62. (PREVIOUSLY PRESENTED) The method according to claim 54, comprising the further step of generating matching values for comparing an element of the free-format data with an element of other free-format data processed in accordance with the present method.

63. (PREVIOUSLY PRESENTED) The method according to claim 62, wherein the matching value is a phonetic value for phonetically comparing elements of free-format data.

64. (PREVIOUSLY PRESENTED) The method according to claim 54, wherein the text object includes implied data relating to information implied from the free-format data.

65-66. (CANCELED)

67. (PREVIOUSLY AMENDED) A method of processing free-format data stored in a computing system, comprising the steps of examining elements of the data to determine attributes of the data, by examining the content of the elements and the contextual relationships of elements to each other, to determine semantic and syntactic information (attributes) about the data, producing a text object associated with each free-format data record comprising a text node tree which includes pointer means enabling access to the elements of the free-format data, and the additional data being accessible by a query processing means to at least one of provide answers to queries relating to the semantic and syntactic information about the data and access the data to manipulate the data

producing a text object index including attribute - type identifiers for elements of each data record and pointers to each data record, whereby the index may be queried by queries relating to semantic and syntactic information about the data and the data may be accessed via the index.

68. (PREVIOUSLY PRESENTED) The method according to claim 67, wherein each entry in the text object index includes a representative value key, which gives a value representative of the element associated with the attribute - type identifier.

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69. (PREVIOUSLY PRESENTED) The method according to claim 54, comprising the further step of carrying out a domain construction process to construct a domain object being arranged to carry out the examination process by parsing the free-format data in accordance with grammar rules.

70. (PREVIOUSLY PRESENTED) The method according to claim 69, wherein the domain definition data files include character-definition data, regular expression definition data and grammar data.

71. (PREVIOUSLY PRESENTED) The method according to claim 54, wherein the free-format data is postal address data.

72. (PREVIOUSLY PRESENTED) The method according to claim 54, the query processing means can carry out normal database operations on the data via the additional data.

73. (CURRENTLY AMENDED) A processing system for processing free-format data stored in a computing system, the apparatus including means for examining elements of the data to determine attributes of the data, by examining the content of the elements and the contextual relationships of elements to each other, to determine semantic and syntactic information (attributes) about the data, means for producing additional data relating to this information, in the form of a text object comprising a text node tree which includes pointer means enabling access to the elements of the text object and the free-format data, and a query processing means which is arranged to access at least one or more of the additional data to provide answers to queries relating to the semantic and syntactic information about the data and to access the data to manipulate the data.

74. (PREVIOUSLY PRESENTED) The processing system according to claim 73, wherein the free-format data is stored as a record in a free-format field of a database.

75. (PREVIOUSLY PRESENTED) The processing system according to claim 73, wherein the examining means does not affect the storage of the data.

76. (PREVIOUSLY PRESENTED) The processing system according to claim 73, wherein the text object includes an attribute - type identifier which identifies an attribute - type of an element of the data.

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77. (PREVIOUSLY PRESENTED) The processing system according to claim 73, wherein the text object includes a value indicating the character length of an element of the data.

78. (PREVIOUSLY AMENDED) The processing system according to claim 78, wherein the text object includes a value, indicating whether an attribute - type of an element is low level in a syntactic hierarchy or high level whereby the value may be used for matching purposes when matching with other free-format data processed in accordance with this system.

79. (PREVIOUSLY PRESENTED) The processing system according to claim 73, wherein the text object includes a match weighting value for an element of the data, which can be used to determine the significance of the element when matching with other free-format data.

80. (PREVIOUSLY PRESENTED) The processing system according to claim 73, wherein the text object comprises a plurality of component nodes arranged according to the semantic structure of the free-format data, the component nodes being arranged in a hierarchy corresponding to the semantic structure of the free-format data, and each component node including additional data relating to the corresponding element of free-format data.

81. (PREVIOUSLY PRESENTED) The processing system according to claim 73, wherein the text object means for generating matching values for comparing an element of the free-format data with an element of other free-format data processed by the processing system.

82. (PREVIOUSLY PRESENTED) The processing system according to claim 81, wherein the matching value is a phonetic value for phonetically comparing elements of free-format data.

83. (PREVIOUSLY PRESENTED) The processing system according to claim 73, wherein the text object includes implied data relating to information implied from the free-format data.

84. (CANCELLED)

85. (PREVIOUSLY AMENDED) A processing system for processing free-format data stored in a computing system, the apparatus including means for examining elements of the data to determine attributes of the data, by examining the content of the elements and the contextual relationships of elements to each other, to determine

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semantic and syntactic information (attributes) about the data, means for producing additional data relating to this information, in the form of a text object comprising a text node tree which includes pointer means enabling access to the elements of the free-format data, and a query processing means which is arranged to access at least one or more of the additional data to provide answers to queries relating to the semantic and syntactic information about the data and to access the data to manipulate the data,

wherein the system is arranged to process a plurality of free-format data records and produce a text object associated with each free-format data record,

wherein the means for producing additional data is arranged to produce a text object index including attribute - type identifiers for elements of each data record and pointers to each data record and wherein the query processing means is arranged to access at least one or more of the text object index to provide answers to queries relating to the semantic and syntactic information about the data and to access the data to manipulate the data.

86. (PREVIOUSLY PRESENTED) The processing system according to claim 85, wherein the text object index includes representative value keys for entries, which give a value representative of a feature of the element associated with the attribute - type identifier for the entry for facilitating matching with other free-format data processed in accordance with this system.

87. (PREVIOUSLY PRESENTED) The processing system according to claim 73, further comprising a domain object, the domain object being arranged to carry out the examination process by parsing the free-format data in accordance with grammar rules.

88. (PREVIOUSLY PRESENTED) The processing system according to claim 87, wherein the domain object is produced by a domain construction process from domain definition data files.

89. (PREVIOUSLY PRESENTED) The processing system according to claim 88, further comprising a domain constructor for carrying out the domain construction process.

90. (PREVIOUSLY PRESENTED) The processing system according to claim 88, wherein the domain definition data files include character definition data, regular expression definition data and grammar data.

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91. (PREVIOUSLY PRESENTED) The processing system according to claim 73, wherein the free-format data is postal address data.

92. (PREVIOUSLY PRESENTED) The processing system according to claim 73, wherein the query processing means is arranged to carry out normal database operations on the data via the additional data.

93. (CURRENTLY AMENDED) A method of enabling access to free-format data stored in a computing system, including a plurality of free-format data records, comprising the steps of storing additional data relating to semantic and syntactic information (attributes) about the data for each data record, the additional data being in the form of a text object associated with each of the data records, the text object comprising a text node tree including pointer means enabling access to elements of the text object and each free-format data record, the additional data being accessible by a query processing means to at least one of provide answers to queries relating to the semantic and syntactic information about the data and to access the data to manipulate the data.

94. (CURRENTLY AMENDED) A processing system for enabling access to free-format data stored in a computing system, including a plurality of free-format data records, the processing system comprising additional data relating to semantic and syntactic information (attributes) about the data for each data record, stored and accessible by the processing system, the additional data being in the form of a text object comprising a text node tree associated with each data record, the text node tree including pointer means enabling access to elements of the text object and each free-format data record, and a query processing means arranged to at least one of access the additional data to provide answers to queries relating to the semantic and syntactic information about the data and access the data to manipulate the data.

95-102. (CANCELED)

103. (PREVIOUSLY PRESENTED) The computer readable memory storing instructions for controlling a computer to process free-format data stored in a computing system, according to the method of claim 54.

104-106. (CANCELED)

107. (PREVIOUSLY AMENDED) A method of processing free-format data stored in a computing system, comprising the steps of

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examining elements of the data to determine attributes of the data, by examining the content of the elements and the contextual relationships of elements to each other, to determine semantic and syntactic information (attributes) about the data;

producing additional data relating to the semantic and syntactic information, in the form of a text object which includes pointer means enabling access to the elements of the free-format data, and the additional data being accessible by a query processing means to at least one of provide answers to queries relating to the semantic and syntactic information about the data and to access the data to manipulate the data, wherein a plurality of free-format data records are processed and a text object associated with each free-format data record is produced; and

producing a text object index including attribute type identifiers for elements of each data record and pointers to each data record, whereby the index may be queried by queries relating to semantic and syntactic information about the data and the data may be accessed via the index.

108. (PREVIOUSLY AMENDED) A method of processing free-format data stored in a computing system, comprising the steps of

examining elements of the data to determine attributes of the data, by examining the content of the elements and the contextual relationships of elements to each other, to determine semantic and syntactic information (attributes) about the data;

producing additional data relating to the semantic and syntactic information, in the form of a text object which includes pointer means enabling access to the elements of the free-format data, and the additional data being accessible by a query processing means to at least one of provide answers to queries relating to the semantic and syntactic information about the data and to access the data to manipulate the data, wherein a plurality of free-format data records are processed and a text object associated with each free-format data record is produced; and

producing a text object index including attribute type identifiers for elements of each data record and pointers to each data record, whereby the index may be queried by queries relating to semantic and syntactic information about the data and the data may be accessed via the index, wherein each entry in the text object index includes a representative value key which gives a value representative of the element associated with the attribute - type identifier.

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109. (PREVIOUSLY AMENDED) A processing system for processing free-format data stored in a computing system, the apparatus including means for examining elements of the data to determine attributes of the data, by examining the content of the elements and the contextual relationships of elements to each other, to determine semantic and syntactic information (attributes) about the data, means for producing additional data relating to this information, in the form of a text object which includes pointer means enabling access to the elements of the free-format data, and a query processing means which is arranged to access the additional data to one or more of provide answers to queries relating to the semantic and syntactic information about the data and to access the data to manipulate the data, the system is arranged to process a plurality of free-format data records and produce a text object associated with each free-format data record, the means for producing additional data is arranged to produce a text object index including attribute - type identifiers for elements of each data record and pointers to each data record and wherein the query processing means is arranged to one or more access the text object index to provide answers to queries relating to the semantic and syntactic information about the data and to access the data to manipulate the data.

110. (PREVIOUSLY AMENDED) A processing system for processing free-format data stored in a computing system, the apparatus including means for examining elements of the data to determine attributes of the data, by examining the content of the elements and the contextual relationships of elements to each other, to determine semantic and syntactic information (attributes) about the data, means for producing additional data relating to this information, in the form of a text object which includes pointer means enabling access to the elements of the free-format data, and a query processing means which is arranged to one or more of access the additional data to provide answers to queries relating to the semantic and syntactic information about the data and to access the data to manipulate the data, the system is arranged to process a plurality of free-format data records and produce a text object associated with each free-format data record, the means for producing additional data is arranged to produce a text object index including attribute - type identifiers for elements of each data record and pointers to each data record and wherein the query processing means is arranged to one or more of access the text object index to provide answers to queries relating to the semantic and syntactic information about the data and to access the data to

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manipulate the data, the text object index includes representative value keys for entries, which give a value representative of a feature of the element associated with the attribute - type identifier for the entry for facilitating matching with other free-format data processed in accordance with this system.